

SMEs go LifeSciences – Projects under preparation

2. COMBATING MAJOR DISEASES

a) Applications-orientated genomic approaches to medical knowledge and technologies

Combating cardiovascular disease, diabetes and rare diseases

Projects # 8, 42, 89, 110, 112.

- LSH-2005-2.1.1-1: Genome-wide mapping and functional genomics of susceptibility to coronary artery disease - INTEGRATED PROJECT
- LSH-2005-2.1.1-2: Hypertension and cardiovascular disease - NETWORK OF EXCELLENCE
- LSH-2005-2.1.1-3: Molecular, genomic and applied genomic studies for the prevention of accelerated cardiovascular death in uraemia and end-stage renal disease - STREP
- LSH-2005-2.1.1-4: Functional genomics and regulatory networks in lipid metabolism and their effects on the development of atherogenic vascular disease - STREP
- LSH-2005-2.1.1-5: Gene-environment interaction on the incidence of type 2 diabetes - INTEGRATED PROJECT
- LSH-2005-2.1.1-6: Molecular pathways underlying decreased beta cell mass in diabetes mellitus - STREP
- LSH-2005-2.1.1-7: Rare inherited neuromuscular disorders: from molecular basis to cutting edge therapies - NETWORK OF EXCELLENCE
- LSH-2005-2.1.1-8: Rare disorders of protein folding – STREP
- LSH-2005-2.1.1-8: Rare disorders of protein folding – STREP
- LSH-2005-2.1.1-9: Rare diseases of connective tissues affecting bone and/or cartilage - STREP
- LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs
- LSH-2005-2.1.1-11: Development of preventive and therapeutic strategies for Type 1 diabetes with strong SME involvement - STREPs dedicated to SMEs
- LSH-2005-2.1.1-12: Development of in vitro and/or animal models for rare diseases - STREPs

Project #8

Project #8 - Heart Failure Service - Israel

Date: 2004/09/09	Deadline: 2006/12/31
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Contact

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Familiar with the European Framework Programme? **YES**

PROJECT

Title: Application of genetic tools in clinical Cardiology	Acronym: Genetics of cardiomyopathies
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Project type	Integrated Project
Status	Planned for submission
Call references	Call 4th

Priorities' Main Research Areas	Combating cardiovascular diseases, diabetes, and rare diseases
Workprogramme Topic (according to each priority workprogramme)	LSH-2005-2.1.1-3 LSH-2005-2.1.1-11

Project description

Genetic cardiomyopathies and arrhythmic disorders are common causes of cardiac morbidity, mortality, heart failure and heart transplantation. These familial conditions constitute not only a genetic challenge but also a major public health issue in our country and beyond its borders. Integrating genetics into clinical practice allows early diagnosis and treatment individuals at risk as well as extends our understanding of the molecular mechanisms of heart disease. Our clinic and lab belongs to the Heart Failure Service and is dedicated to cardiomyopathies and other forms of inherited heart disease. Clinical investigators and geneticists from our group have previously identified and mapped a unique type of lethal cardiac arrhythmia among Israeli Arabs, caused by a recessively inherited and rather prevalent (up to 10% carrier rate) mutation in a novel gene (cardiac calsequestrin). We have recently studied another large Muslim Arab family affected by late onset (30-40 years) familial dilated cardiomyopathy with autosomal dominant inheritance. There are multiple clinically affected individuals with heart failure or after heart transplant and dozens of young, first-degree family members, at 50% risk to develop the disease. The disease can be tracked at least 2 generations backwards. The extended family comprises ~ 4000 people, among whom there are numerous cases of dilated cardiomyopathy or unexplained cardiac death, far in excess of the expected based on the prevalence in general population (1:2500). Numerous family members, probably including carriers, spread to other parts of Israel and to neighboring countries. We intend to map the disease locus followed by positional cloning and candidate gene analysis to identify the gene defect and to use basic research tools to confirm disease causality.

Keywords	Dilated Cardiomyopathy, Hypertrophic Cardiomyopathy, Familial Arrhythmia, Acquired Arrhythmia, Marfan, Genetic Analysis		
Partners already involved	Gertner Institute of Genetics, Sheba Medial Center, Tel Hashomer, The Neufeld Cardiac Research Institute, Sackler School of Medicine, Tel Aviv University, Tel Aviv, Israel		
Project budget (for the running projects)	nc	Budget reserved for SMEs	nc

Research topics

- LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs
- LSH-2005-2.1.1-3: Molecular, genomic and applied genomic studies for the prevention of accelerated cardiovascular death in uraemia and end-stage renal disease - STREP
- LSH-2005-2.1.1-8: Rare disorders of protein folding - STREP

Profile of SME sought

Role	research
Country /region	All Europe
Start of partnership	start-up phase
Expertise required	Population Genetics, Cardiovascular Medicine Pathologic and biochemical diagnosis of metabolic disorders Mutation screen Cellular biology Cellular electrophysiology

Project #42

Project #42 - United Kingdom

Date: 2004/09/27	Deadline: 2005/12/31
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Contact

Partner search located in United Kingdom

To obtain more information about this Partner Search, feel free to contact our national expert in charge of this file:

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Familiar with the European Framework Programme? **YES**

PROJECT

Title: A European Platform for Academia and Industry to Investigate the Genomics of Cardiomyocyte Signalling Relevant to Heart Failure

Acronym:

Project type	Integrated Project
Status	Planned for submission
Call references	Call 3rd

Priorities' Main Research Areas

Life Science, genomics and biotechnology for health

Workprogramme Topic (according to each priority workprogramme)	Genomics of cardiomyocyte signalling relevant to heart failure		
Project description	The project should focus on genomics of signalling mechanisms with respect to heart failure. This will include translational research on existing pharmacological interventions. The aim is the development of improved approaches for the treatment of this syndrome. Achieving this aim should be ensured by the involvement of industry and especially SMEs in the consortium.		
Keywords	Genomics, cardiomyocyte signalling, heart failure		
Partners already involved			
Project budget (for the running projects)	nc	Budget reserved for SMEs	nc

Research topics

<ul style="list-style-type: none"> • LSH-2005-1.2.5-3: Use of cell lines to define new bioassays for the identification of therapeutic bio-molecules (especially orientated towards small and medium sized companies) - STREP
<ul style="list-style-type: none"> • LSH-2005-1.2.5-4: Innovative research in post-genomics, which has high potential for application - STREPs dedicated to SMEs
<ul style="list-style-type: none"> • LSH-2005-2.1.1-1: Genome-wide mapping and functional genomics of susceptibility to coronary artery disease - INTEGRATED PROJECT
<ul style="list-style-type: none"> • LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs
<ul style="list-style-type: none"> • LSH-2005-2.1.1-3: Molecular, genomic and applied genomic studies for the prevention of accelerated cardiovascular death in uraemia and end-stage renal disease - STREP

Profile of SME sought

Role	technology development, research
Country /region	any
Start of partnership	start-up phase
Expertise required	Microarray production/screening/analysis. New pharmacological interventions to treat heart failure and hypertrophy. identification of 'drugable' genes. In vitro model of heart failure eg hypertrophy

Project #89

Project #89 - France

Date: 2005/06/14	Deadline: 2008/12/12
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Contact

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Familiar with the European Framework Programme? **NO**

PROJECT

Title: Diagnostic and visualization of atherosclerotic plaques	Acronym:
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Project type	STREP
Status	Planned for submission
Call references	Call 4th

Priorities' Main Research Areas	2) Combating major diseases a) Applications-orientated genomic approaches to medical knowledge and technologies x Combating cardiovascular disease, diabetes and rare diseases
Workprogramme Topic (according to each priority workprogramme)	LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs

Project description

Atherosclerosis is a disease characterized by the formation of lipid-rich plaques within the walls of arteries which lead to cardiovascular problems such as myocardial infarction, chronic stable angina, stroke and peripheral vascular diseases. In the United States, one million people die annually from the complications of atherosclerosis. At post-mortem examination, it appears that atherosclerosis is evident as early as the second or third decades in life. Until now, there is no means of detection of these plaques in patients until they reach a relatively advanced stage. Consequently, primary prevention targeted at individuals with sub-clinical disease cannot be developed.

The goal of the project is to establish methods contributing to the early diagnostic of atherosclerosis. The first methods will consist in the detection of some specific markers in blood while the goals of the second ones will be the development of new imaging techniques to directly visualize the atherosclerotic plaque.

Detection of specific markers

Recently, it was demonstrated that elevated concentrations of some soluble markers in blood are associated with coronary atherosclerosis. Consequently, plasma concentration of these markers might be useful indicators of the presence of atherosclerosis in human arteries. One goal of the present project is to develop immuno-capture assays able to detect these markers in blood. To validate them as potential markers of atherosclerosis, these assays will be conducted on blood from various mammalian species. They will allow the confirmation of the specificity of these markers using animal models for atherosclerosis.

Visualization of atherosclerotic plaques

Conventional atherosclerosis imaging with X-ray arteriography reveals only the vessel lumen and the silhouette of lesions. Now, it becomes imperative to obtain a direct imaging of the atherosclerotic plaques. New knowledge of molecular and cellular composition of plaques may allow the development of new imaging techniques. These new techniques will be based on Magnetic Resonance Imaging (MRI) using novel contrast agents. To have the capability to identify unambiguously their targets, this new generation of contrast agents will be elaborated by grafting on antibodies directed against the markers of atherosclerosis some currently used paramagnetic contrast agents. The goal of the study is to obtain contrast agents combining high specificity with sufficiently intense signal enhancement. Different combinations will be necessary to modulate the clearance dynamics and to diminish the potential for toxicity of the contrast agents.

Keywords

atherosclerosis, immuno-capture assays, MRI, contrast agents, recombinant antibodies, endothelium, VE cadherin, adhesion, cardiovascular

Partners already involved

- Laboratoire du Développement et du Vieillessement de l'Endothélium Inserm EMI 02-19 -Institut de Biologie Structurale (CNRS/ CEA/ Univ J. Fourier)
- A biopharmaceutical SME in the field of cardiovascular, metabolic and inflammatory diseases

Project budget (for the running projects)

nc

Budget reserved for SMEs

nc

Research topics

- LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs

Profile of SME sought

Role	technology development
Country /region	Any country, East European countries are welcome

Start of partnership	start-up phase
Expertise required	<ul style="list-style-type: none">- SME having expertise in the production of recombinant antibodies- SME possessing some animal models for atherosclerosis- SME able to chemically modify the existing contrast agents to graft them on proteins- SME able to graft on proteins the chemically-modified contrast agents- SME possessing expertise in MRI

Project #110

Project #110 - European Network for Research on Alternating Hemiplegia - Austria

Date: 2005/06/27	Deadline: 2006/12/31
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Contact

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Familiar with the European Framework Programme? **YES**

PROJECT

Title: STREP(s) on Cell Biology/Pathology of Channelopathies, resp. AHC (Alternating Hemiplegia of childhood); Drug Testing in vitro/in animal models	Acronym:
Project type	STREP
Status	Planned for submission
Call references	Call 4th
Priorities' Main Research Areas	Rare disease Neurology
Workprogramme Topic (according to each priority workprogramme)	LSH-2005-1.2.2-2: Innovative methods for diagnosis of nervous system disorders LSH-2005-1.1.0-3: Multidisciplinary functional genomics approaches to study basics biological processes LSH-2005-2.1.1-12: In vitro/animal model for rare diseases LSH-2005-2.1.3-6: Neuroscience oriented new technologies

Project description SPECIFIC TARGETED RESEARCH PROJECT(S) ON CELL BIOLOGY/PATHOLOGY OF CHANNELOPATHIES, RESP. AHC DRUG TESTING IN VITRO/in ANIMAL MODELS			
Keywords	channelopathies, drug discovery, cell biology, proteomics		
Partners already involved			
Project budget (for the running projects)	nc	Budget reserved for SMEs	nc

Research topics

- LSH-2005-1.1.0-3: Proposals concerned with the development of tools and technologies for functional genomics + research focusing on multidisciplinary functional genomics approaches to study basic biological processes. – STREPs dedicated to SMEs
- LSH-2005-1.2.2-2: Development of innovative methods for diagnosis of nervous system disorders - STREP.
- LSH-2005-2.1.1-12: Development of in vitro and/or animal models for rare diseases - STREPs dedicated to SMEs
- LSH-2005-2.1.3-6: Neuroscience-oriented new technologies - STREPs dedicated to SMEs

Profile of SME sought

Role	technology development, research
Country /region	any
Start of partnership	start-up phase
Expertise required	cell biology, proteomics, animal models systems, molecular biology applications, drug testing

Project #112

Project #112 - Spain

Date: 2005/06/30	Deadline: 2039/12/12
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Contact

Partner search located in Spain

To obtain more information about this Partner Search, feel free to contact our national expert in charge of this file:

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Familiar with the European Framework Programme? **YES**

PROJECT

Title: Procyanidins and metabolic syndrome	Acronym:
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Project type	Integrated Project
Status	Planned for submission
Call references	Call 4th

Priorities' Main Research Areas	Advanced Genomics and its applications for Health Combating Major Diseases
Workprogramme Topic (according to each priority workprogramme)	Application of knowledge and Technologies in the field of genomics and biotechnology for health Research on cardiovascular disease Research on Type II diabetes

Project description

The results obtained by our group within the research project AGL2002-0078, as well as those published by other authors, led us to hypothesize that procyanidins might be functionally bioactive molecules for the prevention and/or correction of the metabolic syndrome. In a first step, we will identify, using and in vitro screening, those species of procyanidins that are more bioactive, either individually or combined in different proportions. Next, we will test the effectiveness of the selected procyanidins in laboratory animals in which a metabolic situation similar to that of metabolic syndrome in humans will be induced by a high-fat diet. In these animals, we will assess the effectiveness of the selected procyanidin/s both in preventing and in correcting the syndrome. To get insight into the metabolic targets of the procyanidin/s, we will perform different methodological approaches: in silico analysis of ligand-protein interactions; evaluation of procyanidin/s effects on the main metabolic pathways that are altered in the metabolic syndrome and in the global gene expression profile. Finally, we will evaluate the effectiveness of the selected procyanidins in cultured human macrophages and adipocytes obtained from individuals affected by the metabolic syndrome, since accumulating suggest that the dysfunction of adipose tissue and its production of cytokines is tightly linked with the genesis and progression of the metabolic syndrome.

The interest of this project is the use of procyanidins in the design of functional foods, aimed to prevent or correct the increasing incidence of the metabolic syndrome, a pathology of high prevalence in developed societies, and whose etiology is highly associated with nutritional habits.

Keywords	procyanidins, metabolic syndrome, functional food		
Partners already involved			
Project budget (for the running projects)	nc	Budget reserved for SMEs	nc

Research topics

- LSH-2005-1.1.1-1: A systems approach to understanding the regulation of gene transcription - INTEGRATED PROJECT.

- LSH-2005-1.2.1-3: Rational and accelerated development of new, safer, more effective drugs including pharmacogenomics approaches - STREPs dedicated to SMEs

- LSH-2005-2.1.1-10: Research on cardiovascular disease with strong SME involvement - STREPs dedicated to SMEs

- LSH-2005-2.1.1-4: Functional genomics and regulatory networks in lipid metabolism and their effects on the development of atherogenic vascular disease - STREP

- LSH-2005-2.1.1-5: Gene-environment interaction on the incidence of type 2 diabetes - INTEGRATED PROJECT

Profile of SME sought

Role	other
Country /region	All
Start of partnership	start-up phase
Expertise required	Our partners should be SME interested in flavonoids and its impact on health and healthier foods.

